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U. S. NAVAL MEDICAL RESEARCH
INSTITUTE

NATIONAL NAVAL MEDICAL CENTER

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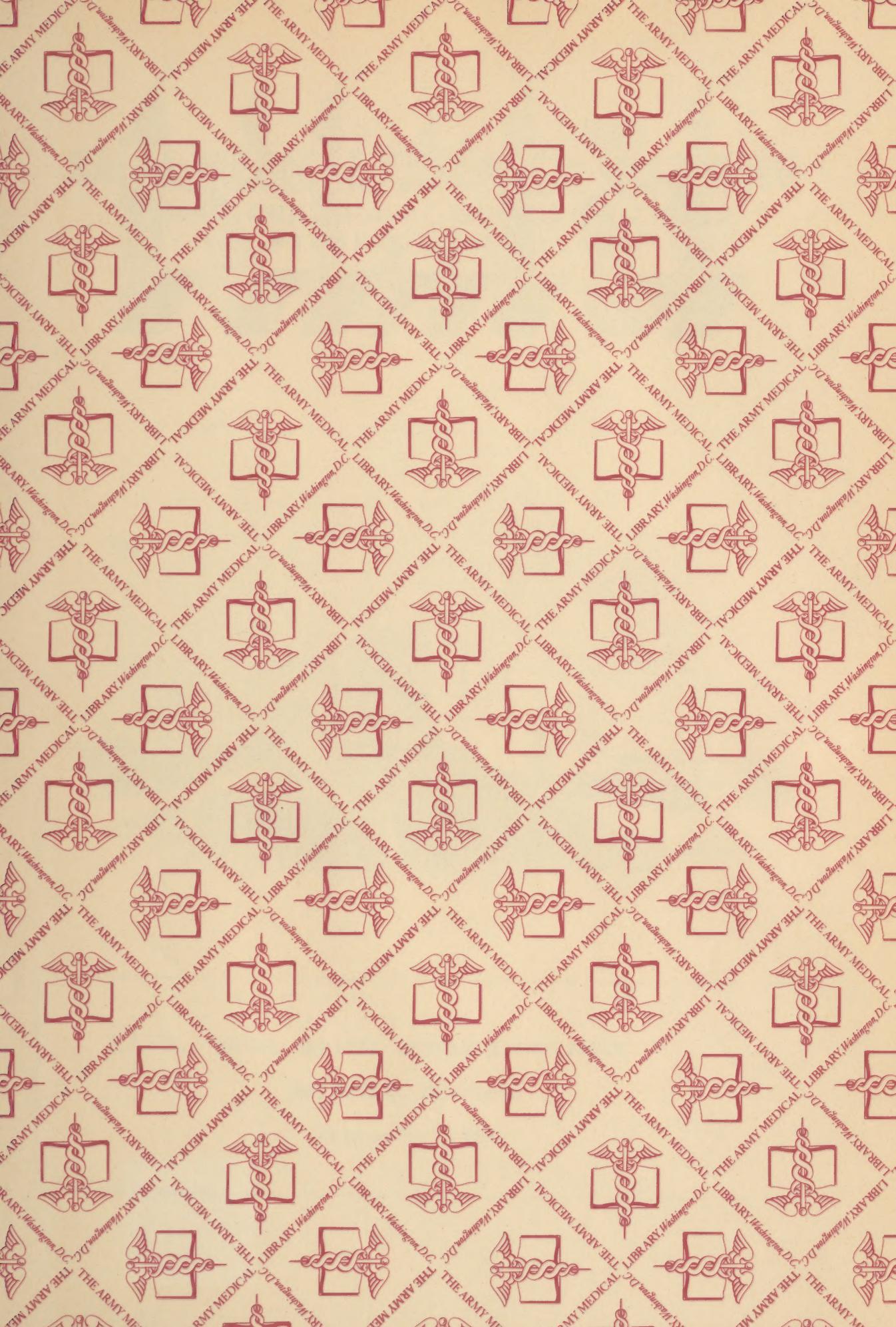
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NAVAL MEDICAL RESEARCH INSTITUTE

NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND

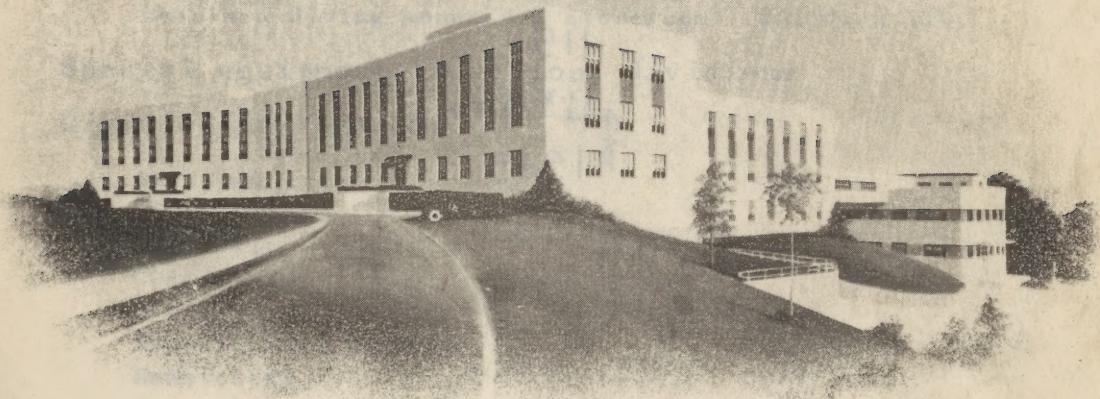
Naval Medical Research Institute air view

Naval Medical Research Institute air view

Naval Medical Research Institute ground plan (sketch)

Naval Physical plant sketch

Plans of various laboratories



Pathology VETERINARY MEDICAL LIBRARY
Pharmacology ANESTHESIOLOGY
Physiology

Psychiatry STATISTICAL

Radiotherapy

Submarine and Diving Medicine

U. S. NAVAL MEDICAL RESEARCH INSTITUTE

Machine Shop
Glass Blowing

September 1949

NAVAL MEDICAL RESEARCH INSTITUTE
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND

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BETHESDA, MARYLAND

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NMRI Physical plant (list)

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Naval Medical Research Institute - Bldg. 17 foreground

Aviation Research and Vibration Labs. - Building 139

Animal Laboratories - Building 119

NMRI Annex - Building 18

Deep sea diving annex and storeroom - Building 119

Special equipment in various divisions

Division photographs

Aviation

Bacteriology

Biophysics

Chemistry

Dental

Experimental Surgery

Hematology

Parasitology

Pathology

Pharmacology and Toxicology

Physiology

Psychology and Statistics

Radiation Technology

Submarine and Diving Medicine

Virology

Machine Shops

Glass Blowing

GENERAL POLICY AND FUNCTIONS OF THE NAVAL MEDICAL RESEARCH INSTITUTE

The function of the Naval Medical Research Institute is to maintain within the Navy an active nucleus of highly competent scientists immediately available to meet the urgent needs of a national emergency.

The scientists who contribute most effectively to a war effort are those whose primary interest is basic research aimed only at the acquisition of new knowledge and understanding. In order to maintain a staff of such scientists, the peacetime policy of the Institute provides for its investigators freedom in the initiation, and support for the prosecution of basic research.

The staff of the Institute is available to field laboratories in other branches of the Service for consultation and advice. The Institute will give advanced training to qualified personnel and occasional assistance in field and preliminary experiments.

GENERAL DESCRIPTION OF
NAVAL MEDICAL RESEARCH INSTITUTE
BETHESDA, MARYLAND

The Naval Medical Research Institute was established in October 1942 and was developed during World War II to its present size and scope of research.

It is the largest activity for medical research in the Navy. On its 87,750 square feet of floor space there are more than 100 laboratories. They are designed for research in Aviation Medicine, Bacteriology, Biophysics, Chemistry, Dentistry, Experimental Surgery, Hematology, Parasitology, Pathology, Pharmacology and Toxicology, Physiology, Psychology, Radiation Technology, (Radiology, Radioisotopes), Submarine and Diving Medicine, and Virology. Additional major features of the physical plant include pressure tanks for research in aviation medicine, and submarine and diving medicine, and psychrometric rooms for physiological and environmental studies.

In support of these laboratories there is a large Animal House with modern provisions for breeding laboratory animals and with air conditioned laboratory suites for studies requiring control of temperatures and humidity. Technical shops, glass apparatus and instrumentation laboratories with skilled machinists and mechanics are available for the design and construction of laboratory apparatus. Practically every scientific instrument needed for biological research is available in the various laboratories. Many special installations and types of apparatus are included, such as the electron microscope, apparatus for X-ray diffraction and electrophoresis, and ultracentrifuge, and ultraviolet, infrared and mass spectrographs.

The staff consists of some 70 scientists in various fields of the biological sciences about a third of whom are civilian and the remainder are in uniform and approximately twice that number of technical assistants from the Hospital Corps and Civil Service.

The scope of the research may be indicated to some extent by the enumeration of some of the research projects which have been completed or on which the staff is currently engaged: Water and food for shipwrecked personnel, evaluation and development

of anti-exposure suits to prolong survival in cold water; development of chemicals for the sterilization of individual canteen water supply; effect of cool quarters on efficiency and performance of naval personnel working in hot spaces; effects on personnel of various concentrations of carbon dioxide and oxygen under conditions of submarine operations; the possible hazards connected with use of silicone insulations in submarine operations; seasickness and means of prevention; studies of the cause and prevention of immersion foot; improvement of lifejackets and stretchers for use aboard ship and in air-sea rescue; effectiveness and practicability of body armor in preventing injuries from bullets and other missiles; prevention and treatment of oxygen poisoning in divers; the formation and appearance of gas bubbles in "bends" and means of preventing "bends"; use of penicillin in the treatment of peritonitis on small ships and isolated naval units; uses of tantalum wire for nerve suture; development of a salt tablet which does not cause nausea and vomiting, to be used in the prevention of heat cramps; nutrition surveys by means of a Mobile Nutrition Unit at Naval Training Stations and aboard ship; evaluation and development of insect repellents and insecticides; development of an improved automatic photofuorographic camera for mass chest surveys for tuberculosis; studies of injuries from atom bomb explosions and means of treatment and prevention; the use of radioactive isotopes in medicine; the development of vaccine for prevention of scrub typhus; the development of a procedure for the immunization of personnel against diarrheal diseases due to bacillary dysenteries; the effectiveness of shipboard evaporators operating in polluted harbors; the prevention of crash injury in aviation; and the use of telemetering devices for recording physiological responses in aircraft.

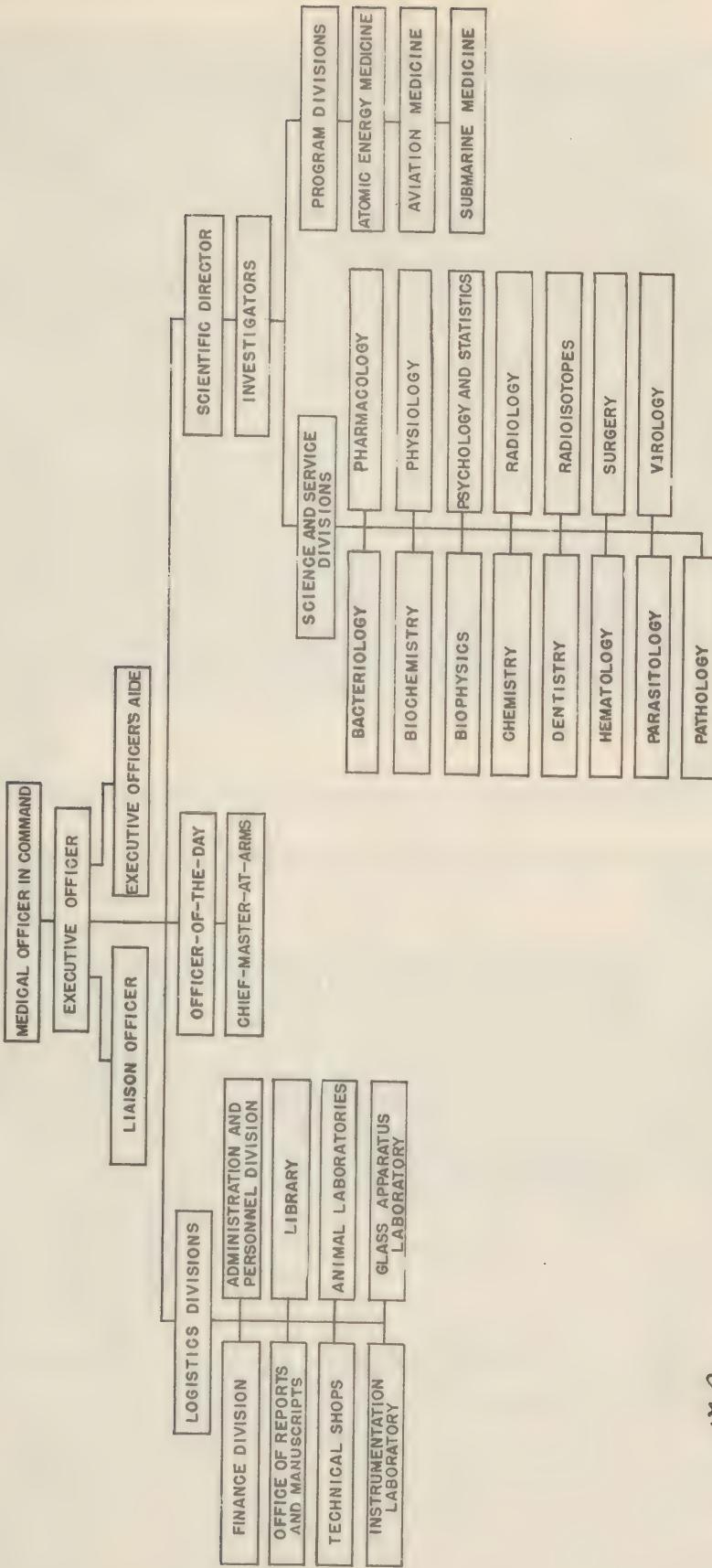
The Commanding Officers of the Naval Medical Research Institute have been:

Captain William L. Mann, MC, USN
10-27-42 to 7-19-43

Captain E. G. Hakansson, MC, USN
7-19-43 to 4-5-48

Captain C. F. Behrens, MC, USN
4-5-48 to

ORGANIZATION CHART
NAVAL MEDICAL RESEARCH INSTITUTE



C. F. Behrens
C. F. BEHRENS
CAPTAIN, MC, U.S. NAVY
MEDICAL OFFICER IN COMMAND

PERSONNEL

CIVILIAN

Investigators or associates

P 9	1
P-8	2
P-7	2
P-6	3
P-5	2
P-4	5
P-3	12

Technicians

P-2	8
P-1	2
SP-8	0
SP-7	1
SP-6	4
SP-5	2
SP-3	1

Administrative

CAF-8	1
CAF-7	1
CAF 6	2
CAF 5	0
CAF-4	8
CAF-3	4
CAF-2	1

NAVAL

Investigators or associates

Medical Corps Officers.....	8
Dental Corps Officers.....	3
Medical Service Corps Officers.	16
Other Officers.....	3

Technicians

Enlisted personnel.....	97
-------------------------	----

Administrative

Medical Corps Officers.....	3
Medical Service Corps Officers..	2
Other Officers.....	1
Enlisted Personnel.....	7

Service - Civilian

Model makers and carpenters	6
Air conditioning and refrigeration.	7
Janitors.....	7
General helpers and laborers.....	3
Machinists.....	6

Electricians and helpers	4
Plumbers	2
Pipefitters	1
Animal keepers.....	15
Laboratory helpers	15

PERSONNEL GRAND TOTAL (Civilian and Naval) 268



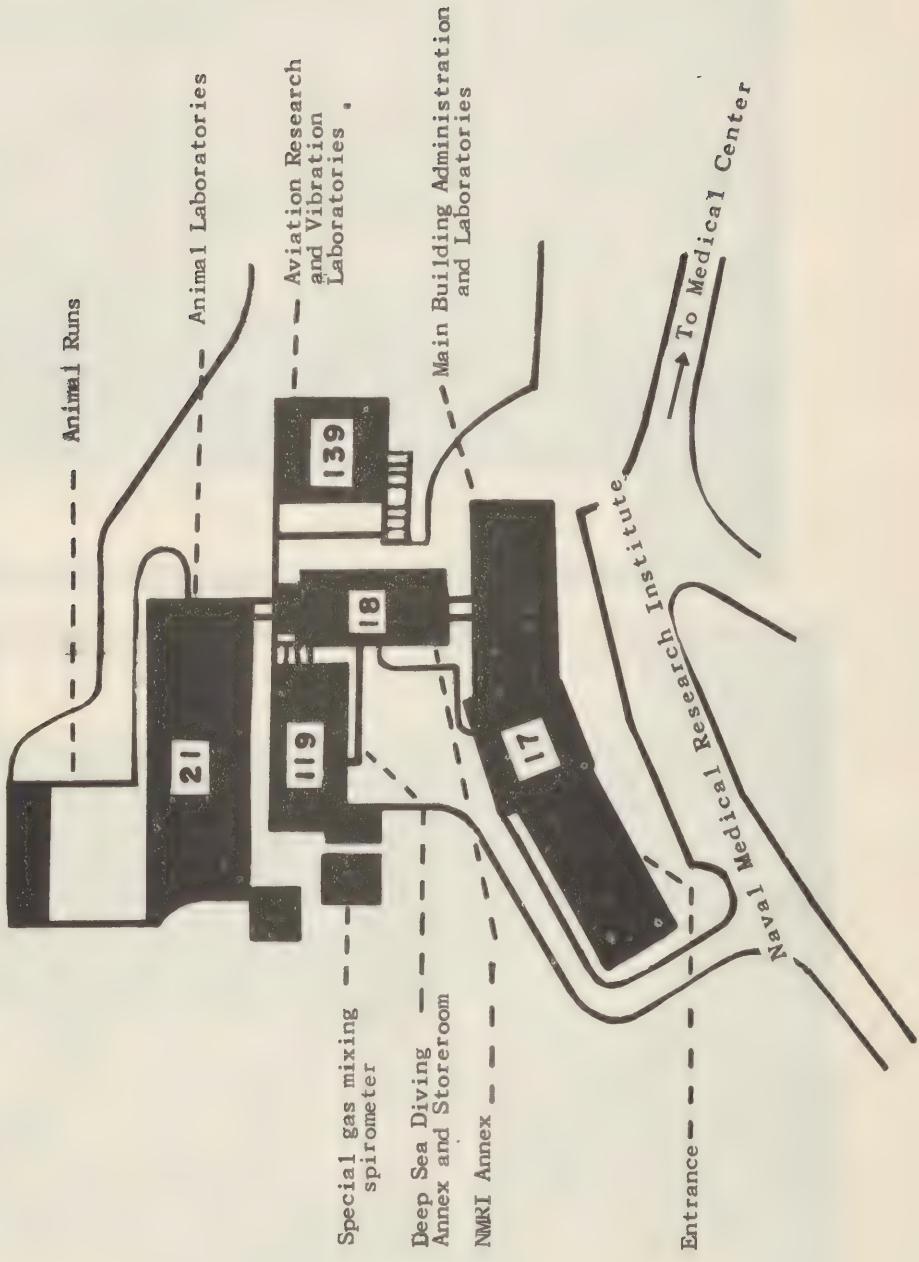
NATIONAL NAVAL MEDICAL CENTER
AIR VIEW

FAIRCHILD AERIAL SURVEYS INC. N.Y.



NAVAL MEDICAL RESEARCH INSTITUTE
AIR VIEW

NAVAL MEDICAL RESEARCH INSTITUTE
GROUND PLAN



PHYSICAL PLANT

<u>BUILDING</u>	<u>FLOOR SPACE</u>	<u>BOOK VALUE</u>
17	33 907 sq. ft.	\$1,002,559.00
18	6 960 " "	312,165.00
21	31 687 " "	582,618.00
119	10 700 " "	254,600.00
139	4 500 " "	10,940.00

NAVAL MEDICAL RESEARCH INSTITUTE
(Building 17 - foreground)





NMRI ANNEX

(Building 18)



DEEP SEA DIVING ANNEX

and STOREROOM

(Building 119)



SPECIAL ITEMS OF EQUIPMENT IN THE VARIOUS DIVISIONS

AVIATION

Low pressure chill chamber to simulate altitudes up to 70,000 feet,
Deceleration tower
Telemetering equipment with frequency modulation transmitters and testing devices
Standard Navy Link Trainer and electronic performance scoring device

BACTERIOLOGY

Tissue and bacteria grinders
Lyophilizing apparatus
Spectrometer
pH meter
Analytical and torsion balances
Vacuum and pressure pumps
Microscopes (research binocular, ordinary, wide field, phase)
Centrifuges
Constant agitation apparatus

BIOPHYSICS

Vibration machine for producing exposures of 2-50 cps.
Ultrasound high intensity generator and measuring devices
Electron microscopes
High vacuum metal evaporators
High speed microtome

CHEMISTRY

Polarograph
X-ray diffraction apparatus
Electrophoresis equipment
Ultracentrifuge
Mass, infra-red, and emission spectrographs

DENTAL

Hardness tester
Microtomes
Oral photographic apparatus
Microscopes (dissecting scope, research scope Bausch and Lomb with micrometer ocular, Spencer binocular)
Grinding and polishing lathes
Incubator
Autotechnicon
Macrophotographic apparatus

EXPERIMENTAL SURGERY

Operating room (fully equipped)

HEMATOLOGY

Microscopes (dark field, phase, ordinary, stereoscopic)

Photographic equipment

Inbred mouse colony - L & A strains

Beckman Quartz Spectrophotometer with ultraviolet light attachment

PARASITOLOGY

Aviaries (pigeons, canaries, chickens)

Insectaries (mosquitoes)

Aquarium (snails)

Microscopes (dark field, phase, ordinary, stereoscopic)

Centrifuges

Microtomes

PATHOLOGY

Microscopes (binocular)

Autotechnicon

Microtomes (paraffin, celloidin and freezing)

Freezing-drying tissue processor

Autopsy room (fully equipped)

Photomicrographic equipment

Photographic dark room

PHARMACOLOGY AND TOXICOLOGY

Microscopes (Leitz and ordinary)

Spectrophotometer

Flame photometer

Continuous extraction apparatus

Kymographs

PHYSIOLOGY

Psychrometric rooms

Gasometric apparatus

Polarograph

Microrespirometers

Beckman Quartz Spectrophotometer with ultraviolet attachment

Precision water bath

Tissot spirometer

Treadmill

PHYSIOLOGY (continued)

Strain gauge manometers
Galvanometers
Slit cameras and other photographic equipment
Micromanometer
Van Slyke blood apparatus
Haldane apparatus
Iodine pentoxide apparatus

PSYCHOLOGY AND STATISTICS

Motion picture animal observation cage
Cage equipment for electrical recording of rat activity
Electroencephalograph
Timing and recording systems
Auditory apparatus
Stimulus randomizer

RADIATION TECHNOLOGY

200 kV X-ray unit
200 MA radiographic unit
I.D.L. scalers and counter tubes
Radioisotope hood
Vibrating reed electrometers
Cambridge precision ionization instruments
Tracerlab autoscaler and G.M. tube

Available for use

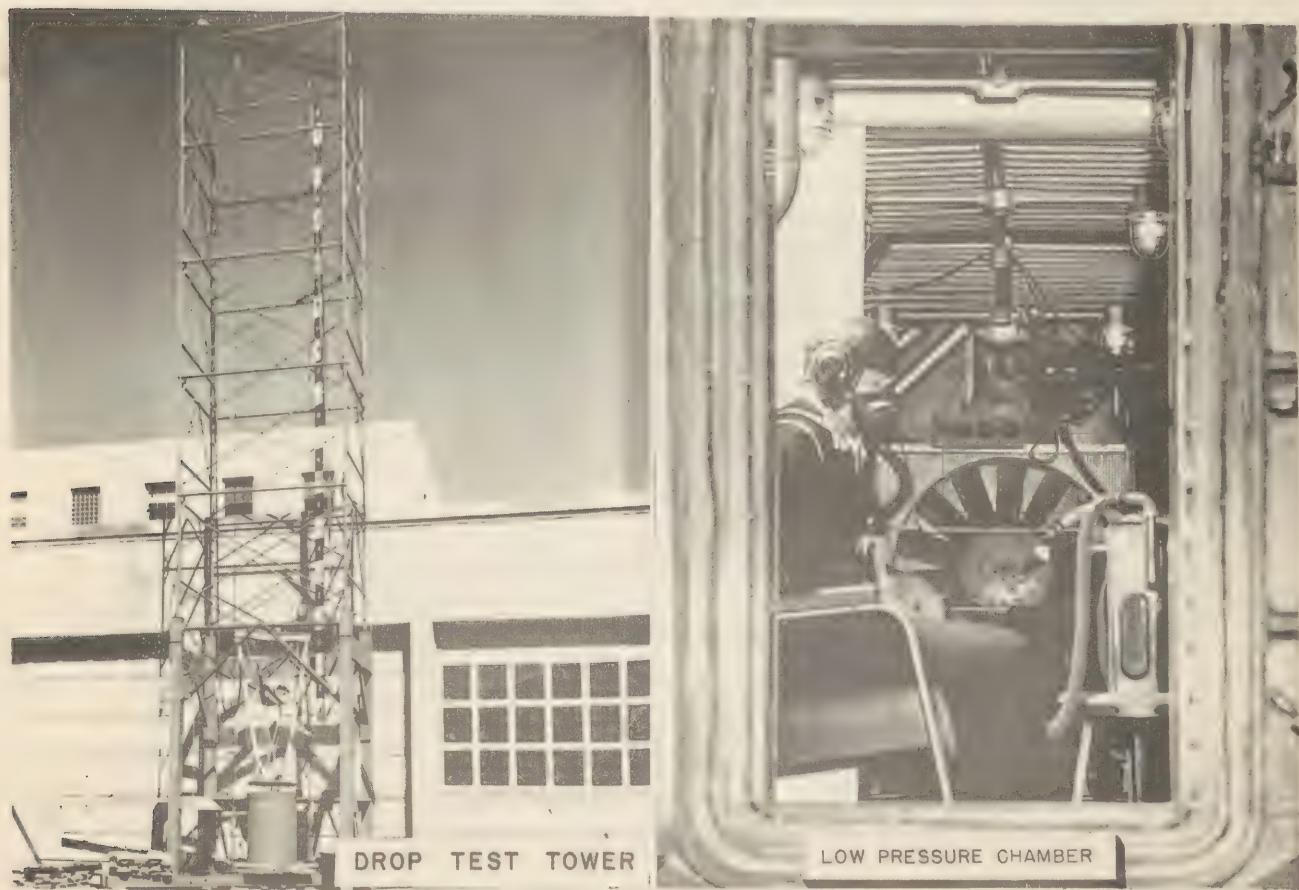
10 Mev Betatron - Naval Ordnance Laboratory
2 Mev Industrial X-ray unit - Naval Ordnance Laboratory
1 Mev Industrial X-ray unit - Naval Gun Factory

SUBMARINE AND DIVING MEDICINE

Pressure diving tank capable of simulating depths as great as 700 feet
Open diving tank
Divers' equipment
Gas mixing chamber
Recompression chambers

VIROLOGY

High speed refrigerated centrifuge
Lyophilizing apparatus
Dry ice storage
Chick embryo propagation
Insect rearing
Microscopes (binocular research, dissecting)





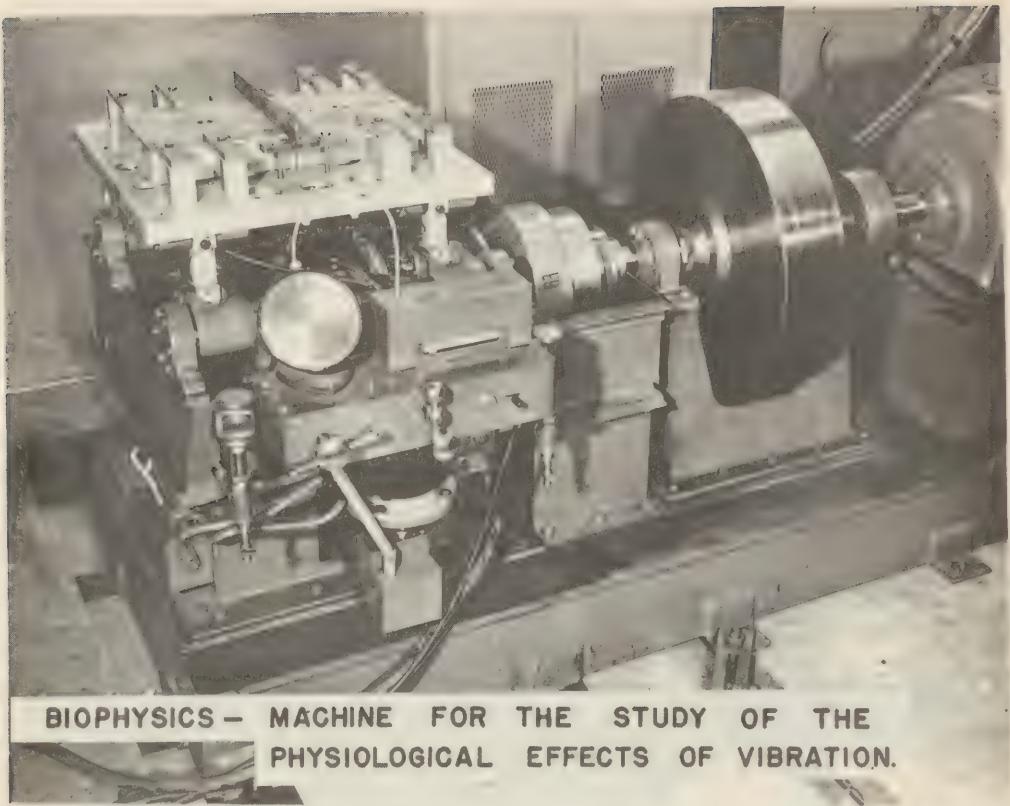
BACTERIOLOGY—OBSERVATIONS ON THE EFFECT OF ESTROGENIC HORMONES ON THE PATHOGENICITY OF MICROORGANISMS FOR LABORATORY ANIMALS.



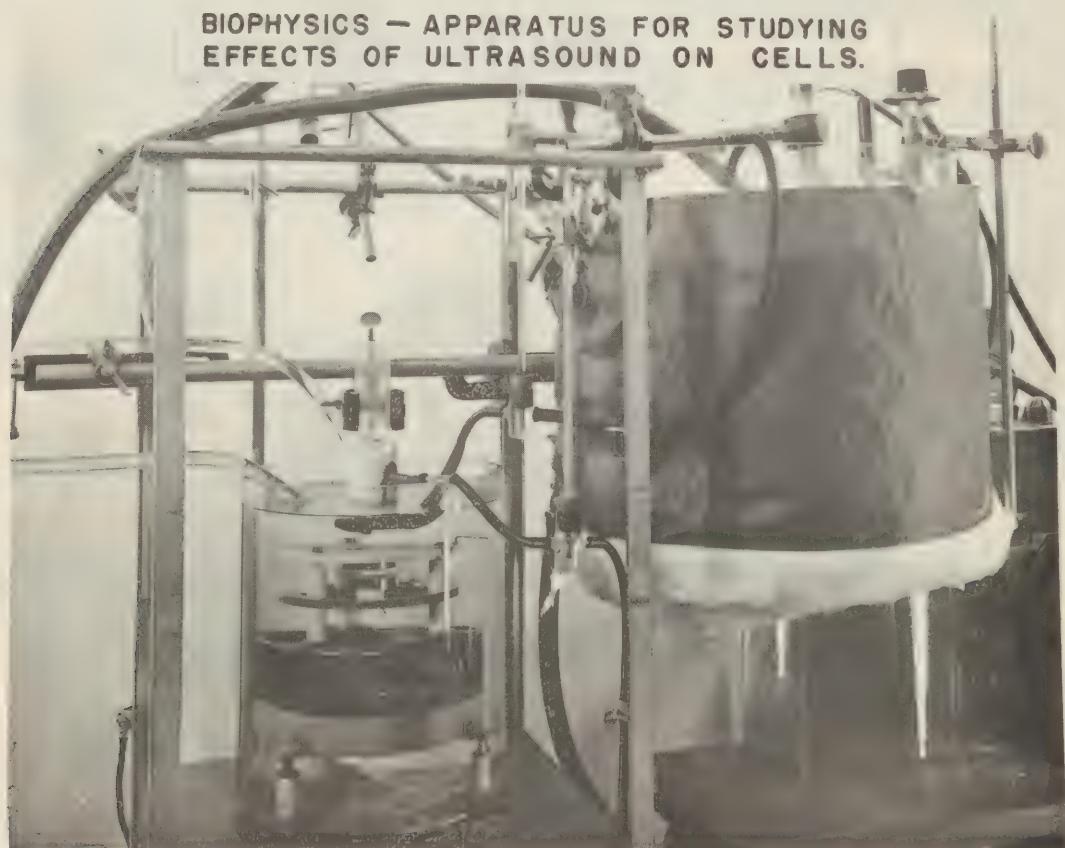
BACTERIOLOGY—PREPARATION OF CULTURE MEDIA FOR THE GROWTH OF BACTERIA.



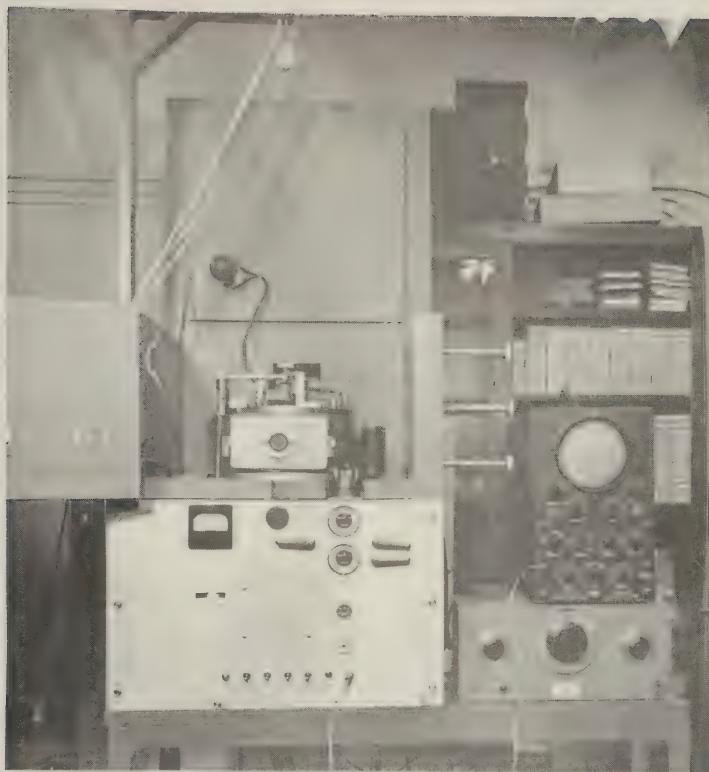
BACTERIOLOGY—CULTURAL AND SEROLOGICAL IDENTIFICATION OF DYSENTERY BACILLI.



BIOPHYSICS — MACHINE FOR THE STUDY OF THE PHYSIOLOGICAL EFFECTS OF VIBRATION.



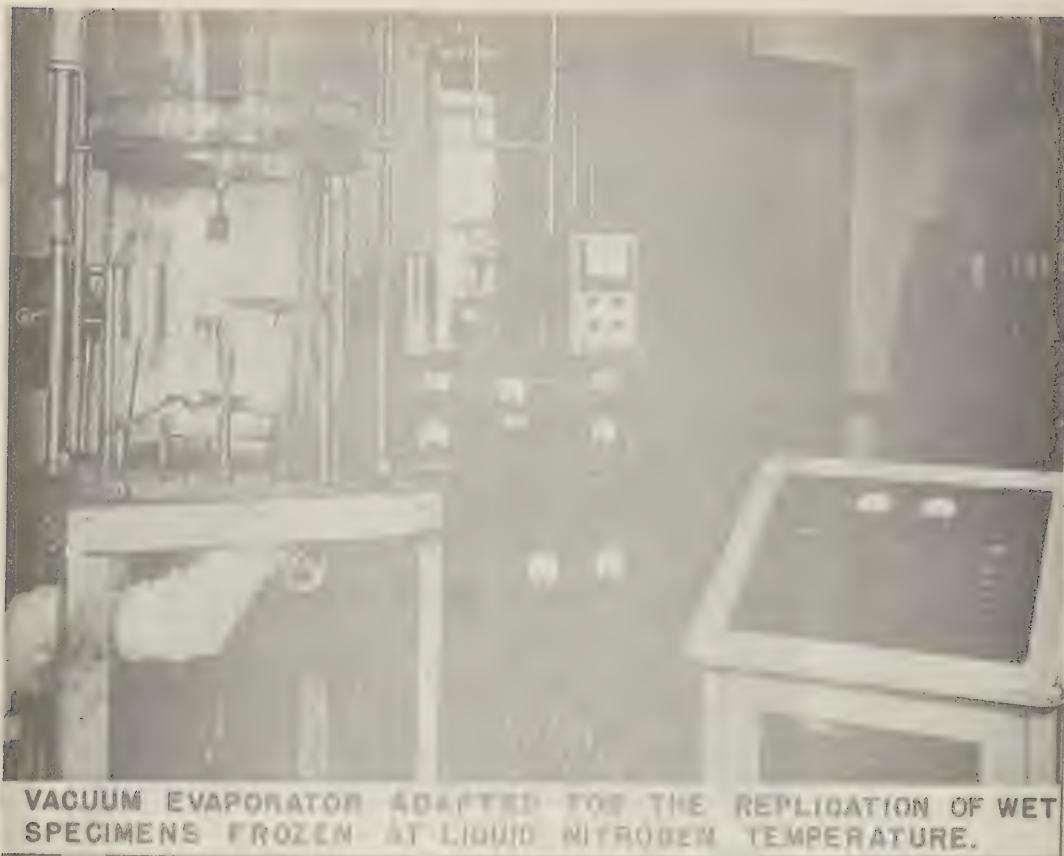
BIOPHYSICS — APPARATUS FOR STUDYING EFFECTS OF ULTRASOUND ON CELLS.



HIGH SPEED MICROTOME FOR THIN SECTIONING OF
TISSUE FOR ELECTRON MICROSCOPY.



RCA MODEL EMB ELECTRON MICROSCOPE ADAPTED
FOR DIRECT MICROSCOPY OF FROZEN SPECIMENS.



VACUUM EVAPORATOR ADAPTED FOR THE REPLICATION OF WET SPECIMENS FROZEN AT LIQUID NITROGEN TEMPERATURE.



GAS ANALYSIS—ANALYSIS BY MASS SPECTROMETRY

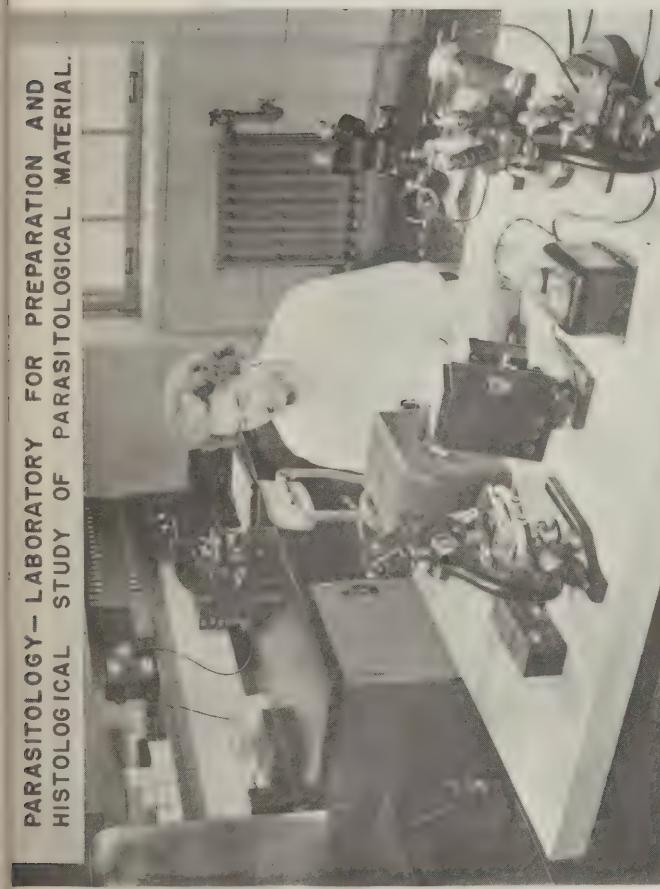
A DENTAL EXPERIMENTAL LABORATORY



STUDY OF ORAL LESIONS PRODUCED BY
IONIZING RADIATION



PARASITOLOGY—LABORATORY FOR PREPARATION AND
HISTOLOGICAL STUDY OF PARASITOLOGICAL MATERIAL.





RADIOLOGY - 200 KV X-RAY GENERATOR



PHYSIOLOGY - A RECORDING FLUORESCENT PHOTOMETER
FOR MEASURING CEREBRAL CIRCULATION TIME
WITH FLUORESCIN AS INDICATOR.



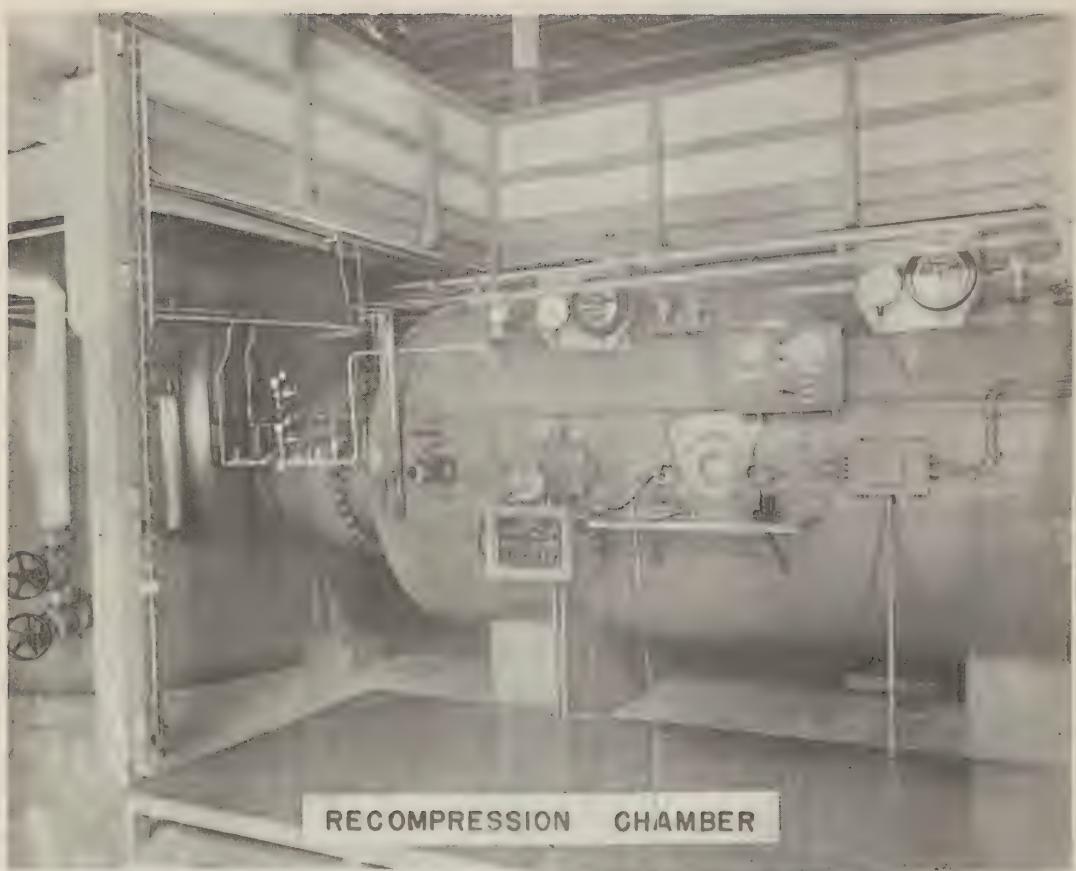
PSYCHOLOGY AND STATISTICS - A LIGHT AVERSION CAGE TO STUDY BEHAVIORAL EFFECTS OF CHEMICAL MEDIATORS.



RADIOISOTOPES - REMOTELY CONTROLLED
PIPETTING OF SAMPLES.



VIROLOGY - EGG TESTING LABORATORY





CONSTRUCTION SPECIAL RESEARCH TESTING EQUIPMENT
ROOM #1



GLASS BLOWING



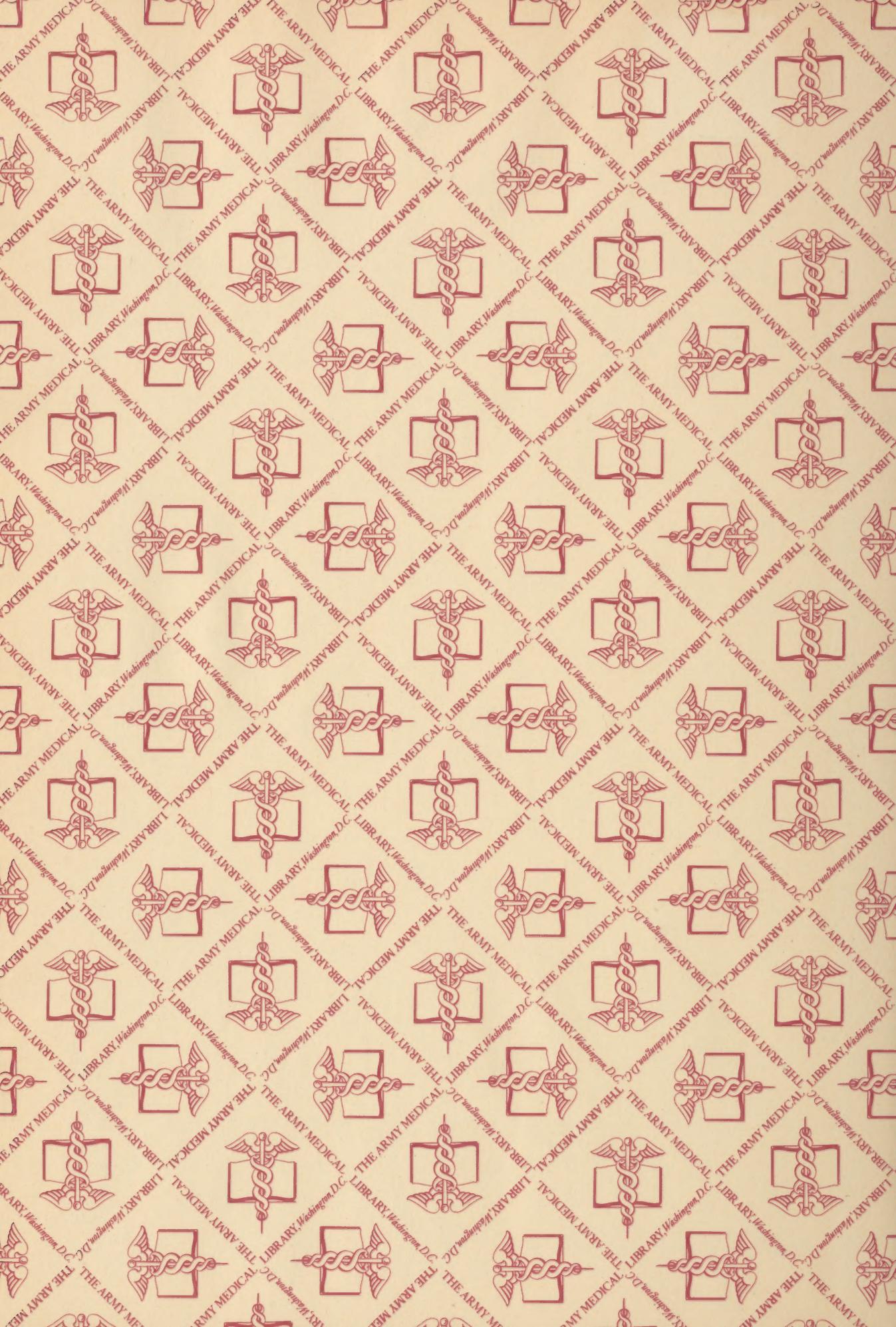
CONSTRUCTION SPECIAL RESEARCH TESTING EQUIPMENT
ROOM #2



SHEET METAL WORK

CONSTRUCTION EXPERIMENTAL ANIMAL CAGES

MACHINE SHOP



**SPEEDY
BINDER**

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